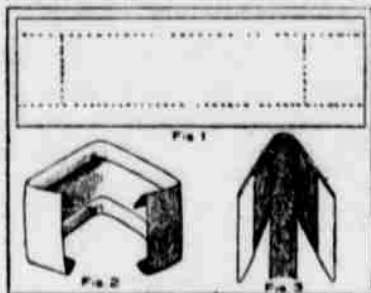


INDUSTRY AND MECHANICS

A PAPER BOOK COVER.

It Will Save Soiling Books When Much Used.

Book covers become soiled in handling and especially school books. Various methods are applied for making a temporary cover that will protect the book cover. A paper cover can be quickly made by using a piece of paper larger than both covers on the book when they are open. Fold the paper larger than both covers on



To Protect Book Covers.

the book when they are open. Fold the paper on the long dotted line, as shown in Fig. 1. When the folds are made the paper should then be just as wide as the book cover is high. The ends are then folded on the short dotted lines, which will make it appear as shown in Fig. 2. The paper thus folded, says Popular Mechanics, is placed on the book cover as shown in Fig. 3.

HOW TO UPSET AN AX.

How It Can Be Made as Good as New.

Heat the ax to a bright yellow and hammer as shown at A in the sketch.



Turn over and proceed in the same manner on the other side, then heat again and hammer at B. Hammer at a low heat when finishing so as to leave a smooth surface, says the Blacksmith and Wheelwright. Do not strike edgewise, but trim off all the superfluous metal. File smooth and heat to a cherry red. Lay three-fourths inch from the edge. Plunge into a slack tub, edge first, until cold. This will harden the ax and the next is to temper. Blow up your fire and, after brightening the ax, hold over the fire and draw to a blue color and cool off and the job is done. Be careful not to draw the heat too fast at the edge, or it may be too soft in the edge or too hard one-half or three-fourths inch from the edge.

Ruby Glass.

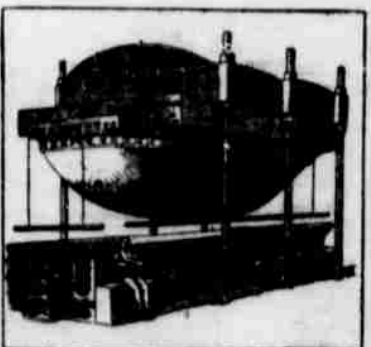
In his book on "The World of the Infinitely Small," Prof. Gruner of Bern gives an interesting account of ruby glass. Genuine ruby glass is expensive, because it is prepared with gold. It owes its color to the presence throughout its mass of particles of gold too small to be seen with the microscope. Only the ultramicroscope, which renders visible objects perceptible by means of their diffraction of light, is able to show the existence of these minute particles. With the ordinary microscope the glass appears as a uniform transparent mass, but the ultramicroscope shows that it is filled with points of light resembling stars on a black background. These points indicate the presence of the particles of gold to which the color of the glass is due.

Of course, you are no better than your fellow man, but somehow he is always just a little worse than you are.

SEAMLESS BOAT PRESS.

How Steel Vessels Are Made Under Hydraulic Pressure.

In many cases the English manufacturers of motor boats are making



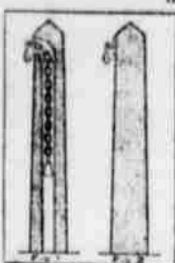
Press for Shaping Boat Hulls.

the hulls of seamless steel. This illustration shows one of the hydraulic seamless boat presses by which this work is accomplished.

SERVICEABLE AND NEAT.

How to Make a Good Cement Hitching Post.

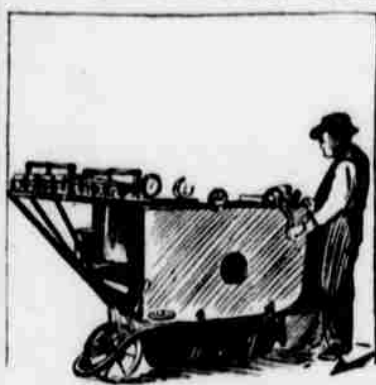
The cement post as illustrated by the accompanying sketch is made in a mold constructed of boards. The shape of the mold can be made to suit the builder. The post should be about ten inches at the bottom and six or seven inches at the top. When the mold is ready for the cement a one and half-inch gas pipe with an elbow turned on one end is placed in the mold. A cement composed of two parts sharp, clean sand and one part cement, is suggested by Popular Mechanics, this cement to be poured into the mold around the pipe. When the cement sets the pipe should be in the center of the post, as shown in Fig. 1. A chain with a weight attached to one end and a snap on the other is placed in the pipe as shown. The ring holding the snap is made sufficiently large so it will not pass into the elbow. Fig. 2 shows the completed post.



PORTABLE CANNING MACHINE.

Will Enable Farmer to Put Up Fruit Right in Orchard.

A machine by which the farmer can prepare and can his fruits, tomatoes, corn, beans, or any other farm produce which can be canned, in the fields or orchards in which the vegetable or fruit is growing, has, says Popular



Machine is on Wheels.

Mechanics, been invented by a Chicago man.

Mounted on a wheelbarrow arrangement the machine can be pushed from one orchard to another or from a tomato patch to a corn field as necessity requires. In operation the cans are first placed in the crate shown at one end of the machine, where they are filled with the fruit or vegetable to be preserved. The crate is then set in water at a temperature of 245 degrees F. and kept there for ten minutes. The water is heated by a kerosene burner. The heads of the cans are next soldered on, and the cans again submerged in hot water, where they are supported by an endless conveyor which is operated by a chain and sprocket. At the end of an hour this conveyor discharges the cans into a vat of cold water. The hot preserved produce immediately contracts and a partial vacuum is formed. If the can is airtight the top warps inward, which is a sign of the good condition of the matter canned.

Different Over Here.

Patience—I see it is said that the men of Japan are the most expert needleworkers in the world.

Patrice—It must be very mortifying, when a man over there finds a button off his shirt, to have no one to blame but himself.—Yonkers Statesman.

Why It Was Fatal.

"Poor old Reub! I hear he blew out the gas in one of them city hotels."

"He didn't do no such thing, er he'd 'a been alive today. 'Twas th' light he blew out!"—Cleveland Leader.

Durability of Steel.

English technical journals quote with approval the recently announced conclusions of Mr. John H. Heck concerning the durability of mild steel in actual service in machinery, ships, and so forth. This is a question which is not settled by the preliminary tests of strength. Mr. Heck shows that nearly all the failures of steel occur very early in its history. If a plate, or bar, of mild steel lasts for a year in service, it may be trusted to last many years. The most injurious thing is continual bending backward and forward, as in what is called the "panting" of a boiler end. As London Engineering puts it, steel has a somewhat "tumultuous youth," but "in middle age it is trustworthy, and in old age beyond reproach." In regard to corrosion, there is difference of opinion, some holding that steel corrodes more readily than iron.

Sends Power Without Wires.

A young inventor of Lyons, France, is said to have solved the problem of the transmission of electrical energy without the use of wires

COOK EGGS THREE MINUTES.

Authority Gives This as Proper Time to Be Allowed.

Martinet, the authority on eggs, thinks that the water should be salted before the egg is put in it, and that the egg should be put in when the water is boiling. He advises taking the dish containing the boiling water from the fire as soon as the egg is put in, and leaving the egg in for three minutes. Cooked in that way the eggs preserves all unctuous savors, while it is very light and digestible. A medium-sized egg should be put in boiling water and allowed to stand two and a half minutes, but three minutes should be given to large eggs. Martinet thinks that an egg thus cooked is as digestible as a raw one.

The raw egg misses the beneficial action of mastication; the stomachic action is different. The properly boiled egg is eaten; the improperly cooked one is swallowed, not eaten. Hard-boiled eggs remain in the stomach between two and three hours. Dyspeptics find them difficult to digest. Munck and Ewald, who experimented by plunging them in artificial gastric juice, found them easier to digest when cut in thin slices.

KEEP SPOONS FROM FRUIT.

Even Silver Injurious If Left from One Meal to Another.

Many women leave silver spoons in preserves from one meal to another, remarking that the articles are silver and the fruit acid will not ruin them. But do they stop to think what the silver will do to the fruit? It poisons it, even though the spoon is silver. There is a chemical process between the fruit acid and metal which makes the fruit unfit for use. This is ever more so where genuine silver is not used. Lard will turn a spoon green in a few days in hot weather, yet after a silver spoon will be left in the lard can. Vinegar brought from the store will be left for hours in the tin bucket, then poured into a glass jar. Remember to keep lard in tin or porcelain, acids in glass, sugar in a porous crock or glass jar, salt in a wooden box or glass receptacle and spices in tin that they will not absorb odors or flavors from each other if placed in paper. Keep chocolate in a closed dish or paper box. Bitter or sweet chocolate or cocoa powder will absorb any odor near by, even the wood odor of a cupboard.

ART IN BROILING CHICKENS.

Too Hot Fire Usually Responsible for Non-Success.

To broil chicken so that it is cooked through, yet not burnt, is an art few cooks seem to possess. The reason is usually that the fire is too hot and the chicken too close to it.

The perfection of broiling requires a clear bed of coals and the broiler far enough away for its contents to cook slowly. This latter requirement is met by having several bricks, on which the broiler can be set to raise it above the flame, instead of allowing it to rest directly on the surface of the range, as is the usual way.

Should the fire be too hot, insert another layer of bricks for a short time, removing them later.

A medium sized pair of chickens requires 25 minutes to be broiled in this way. At the end put into a baking pan, covered with butter, pepper and salt, until a nice gravy is drawn.

In putting the chicken on the broiler, turn the inside toward the fire first, and later turn over on the back.

A Sweeping Hint.

On sweeping days I have found it an excellent plan when dusting to first remove the greater part with a dry dust cloth, then to go over the furniture a second time with a cloth which has been moistened with a little crude oil. The oil not only softens the throat and lungs of the housewife, but also gives a fine polish to the furniture.

To Make a Soap Shaker.

A satisfactory and decidedly convenient soap shaker can be made out of an ordinary baking powder can. Drive a number of holes in the top of the can with a nail and throw into the can all scraps of soap which are too small for use and put the top on again.

When washing the dishes, put the can into the dishpan and let the hot water run into it. Then shake a few times and a fine soapuds will be the result. When not in use, stand the can on a saucer, as some of the water is likely to remain in the can.

Jimjam.

Extract juice from four boxes of currants as for jelly. Put over fire with five pounds of sugar. Let it come to a boil, skim, then add rind and pulp of one orange cut up finely, one package seeded raisins and two boxes red raspberries. Cook until thick, about 20 minutes, pack in jelly glasses. Pour melted paraffin over top before putting on cover. Delicious.

Must Win Occasionally.

Even the game loser ceases to command respect if he loses often.

STANDBY OF THE WHITE SOX



FRANK OWEN

Frank Owen, member of the pitching staff of the Chicago White Sox, who is doing good work on the slab this season.

HOW UMPIRE TIM HURST HANDED IT TO COOLEY

Latter Tried to Be Put Out of Contest, But Veteran Was On to His Game.

Of all umpires before or since there are none that have had so much newspaper space accorded to them as the chubby little umpire, Tim Hurst, says the Washington Post. There has never been one who has ruled the field with the same rod of iron as has Sir Timothy, and this in the days when ball players were men who would as soon trim an umpire as they would attend to any of the ordinary avocations of the day.

Such flaccid giants of the grassy diamond as Pat Tebeau, Jimmy McAllister, Jack O'Connor, Glasscock, Virgil Garvin and many others too numerous to mention, who made it a point to go after the umpires of a decade and more ago, never tried any of their games on Hurst and came out of the big end of the horn. Tim always won out hands down, and, in addition, made the other fellows eat crow of the bitterest variety. Hurst always adapted himself to the situation in hand, and, as the song goes in the opera of "The Mikado," he invariably made the "punishment fit the crime."

Bill Bernhard, when in Washington last year with the Cleveland Club, told a story concerning Hurst and Dick Cooley, who was then a member of the Philadelphia team, as was Bernhard himself. The story, which has perhaps never before been in print, treats of one day when Cooley, in running backward to make a difficult catch, fell over on his head, and, in addition, got such a shaking up that he asked his manager to allow him to retire from the game, but Dick was a swell batter, and the manager, thinking that he was faking, refused his request.

But Cooley was surely hurt badly, for he began to miss balls and also to strike out, and then he suddenly thought of a plan that would enable him to get out of the game, and he started in to abuse Hurst, but Tim was wise to the situation, and he let Dick "chew the rag" to his heart's content, and, as Bernhard says, it was estimated by Tom Sampson, the mathematician of the Philadelphia team, that Dick did enough to be fined, at the smallest calculation, \$11,000, and to be put out of the game for 355 years.

Every decision made Dick would come running in and would abuse Tim frightfully, but Hurst, with a knowing smile on his face, would wave him to one side. Finally after an unusually fervid burst of billingsgate, Dick, sticking his face close up to Tim's, shrieked:

"Going to chase me from the game, eh?"

"Now," leisurely replied Tim; "I'm going to keep you in the game, just to show the people what a bum ball player you really are."

According to a baseball official who knows, purchase prices for minor league players are running pretty stiff this season. The \$11,000 paid by the New York Nationals for Pitcher Marquard is a sample. That amount was paid, too. One American league club bid \$8,500.

The Boston Americans are to have another Collins. The new "Jim" is a pitcher with a record of 16 strikeouts in the Maine league.

LIFE OF THE AVERAGE BALL PLAYER IS SHORT

Strenuous Training Each Spring and Temptations to Drink Hard on Majority.

Just now while the annual Cy Young and George Van Haltren stories are going the rounds and the baseball writers are using up reams of paper telling how long these men have been in the game, a lot of folks are wondering why so many ball players last a few seasons, go back to the minors, and then disappear entirely.

The average baseball life is generally conceded to be somewhere between 10 and 12 years. A man may work in a rolling mill 12 hours a day for 20 years, he can make duplicate watches and highgrade works of art for a score of years, he can engage in all sorts of work that requires skill and good eyesight for perhaps twice as long as an average ball player retains his skill, and there must be some good reason for this.

It is a noticeable fact that all the ball players who have been in the game for years and who still play as they used to, never lay off and loaf for long periods. Ball players by the hundreds quit all kinds of work when the season ends in the middle of October and do not do a tap of work until March, when their clubs go south.

Then the winter laggards have to sweeter and work in a hot climate to get down to playing weight. Taking off weight rapidly always saps a man's strength, as those who grow fat in the winter are in a weakened condition for several weeks and cannot do themselves justice.

The temptations to drink and lead a fast life are greater in baseball than in the more prosaic occupations. A star ball player is much sought, and hundreds of hangers on in places where a ball player shouldn't be are tickled half to death if the diamond hero will join them in a "good time." A lot of the younger fellows fall for it and in consequence come back in the spring in mighty poor shape.

An observer could name two dozen veterans of the American league who show up just a little each season, who work and work to distraction each spring to catch on by the time the season starts, yet who spend their winters in luxurious idleness. It seems a queer way of doing.

Some one has suggested that club owners sign up their players in a 12-months' contract, and run a wood chopping brigade or a pedestrian club in the winter time. But the managers and magnates have enough woes keeping the men going during the season.

GOSSIP OF THE DIAMOND

Manager Murray made a good move when he pulled Lefthander Foxen from Jersey City. He has more than made good.

"Managers who stand for players who insult umpires are worse than the players, and poor baseball assets," declares an eastern baseball man.

Herman Shaefer has been made field captain of the Detroit Tigers in place of Coughlin. Shaefer is the pepper merchant of the club outside of Hughie Jennings himself.

The latest spoken of as manager of the Highlanders is Jack O'Connor, the old reliable catcher. It looks, however, as if it was only a rumor.